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no remarkable absorption in the violet are characterized by broad hydrogen lines. Stars which show a considerable absorption in the ultra-violet have thinner hydrogen lines, of about the same average thickness as those in the solar spectrum. Stars showing a very considerable amount of continuous absorption in the violet have very thin hydrogen lines. The same arrangement does not hold true for the other lines of the spectra, however, for "there are stars in which the hydrogen lines have the same average thickness, while the remaining lines are almost entirely different." An attempt has been made to arrange the stars with reference to their temperatures.

It will be remembered that a few years ago Prof. LOCKYER published his *Meteoric Hypothesis*, which contends that all celestial bodies are, or have been, swarms of meteorites, the difference between them being due to different stages of condensation. It is his opinion that these results confirm the conclusions previously arrived at from visual observations. Prof. LOCKYER's hypothesis depends very largely upon assumed wave lengths of lines in the bright-line spectra. Until recently these wave lengths were known only very roughly. The observations of nebular spectra by KEELER and others show pretty definitely that Prof. LOCKYER's assumptions regarding the principal nebular lines are not tenable. My observations of the bright lines in the WOLF-RAYET stellar spectra (see note respecting γ *Argus* below), show that the wave lengths of the lines are, for the most part, radically different from those assumed by Prof. LOCKYER. W. W. C.

DR. HENRY DRAPER'S PHOTOGRAPHS OF THE MOON.

In these *Publications*, Vols. III, page 374, it was mentioned that it was the intention of Mrs. ANNA PALMER DRAPER to present to the LICK Observatory a selection of copies of the best negatives of the Moon made by Dr. HENRY DRAPER at his observatory at Hastings-on-Hudson in the years 1863-1880 with reflectors of 28 and 15.5 inches (made by himself), and with an 11-inch photographic refractor (made by ALVAN CLARK & SONS). The originals of these pictures are deposited in the Columbia College Observatory, New York. Mrs. DRAPER's kind intention has recently been carried out, and a set of copies has been presented to the observatory. They were made by Mr. MONELL, of the College Observatory, under the direction of Professor REES. The photographs were taken on the following dates. The "age" is approximate only:

1863.	Age.	1873.	Age.
Sept. 2 . . 19 days.		July 16 . . 22 days.	
Sept. 3 . . 20 days.		Sept. 9 . . 18 days.	
Sept. 3 . . 20 days.		Sept. 12 . . 21 days.	
1864.	Age.	Sept. 13 . . 22 days.	
June 13 . . 9 days.		1874.	Age.
June 13 . . 9 days.		July 22 . . 9 days.	
Oct. 18 . . 17 days.		July 24 . . 11 days.	
1872.	Age.	1878.	Age.
Sept. 9 . . 7 days.		July 14 . . 14 days.	
1880.	Age.		
Aug. 29 . . 24 days.			
Aug. 29 . . 24 days.			
Sept. 24 . . 20 days.			
Sept. 30 . . 26 days.			

The grateful thanks of the observatory are returned to Mrs. DRAPER for this important addition to its collections. E. S. H.

THE MOTION OF THE SOLAR SYSTEM.

Dr. KEMPF of Potsdam, at Prof. VOGEL's suggestion, has investigated the value of the recent Potsdam spectroscopic observations, when applied to the problem of the Sun's motion in space. The velocities of 51 bright stars were measured. By giving equal weights to the results for all the stars and solving for the resultant motion of all (which is assumed to be exactly the opposite of the Sun's motion) it was found that most probably the solar system was moving towards that point of the heavens whose co-ordinates are :

$$R. A. = 206^{\circ}.1 \pm 12^{\circ}.0, \quad Dec. = + 45^{\circ}.9 \pm 9^{\circ}.2,$$

with a velocity of 11.61 ± 1.84 English miles per second. But it is known that in certain groups of stars the individual stars have nearly equal velocities and proper motions. Such groups are, in the Potsdam list, $\beta, \gamma, \delta, \epsilon, \zeta$ *Orionis*, $\beta, \gamma, \epsilon, \zeta, \eta$ *Ursæ Majoris*, and α, β, δ *Leonis*. By treating each of these groups as if it were a single star, Dr. KEMPF obtained the following as the most probable elements of the solar motion :

$$R. A. = 159^{\circ}.7 \pm 20^{\circ}.2, \quad Dec. = + 50^{\circ}.0 \pm 14^{\circ}.3,$$

$$Velocity = 8.06 \pm 2.02 \text{ English miles.}$$

Previous determinations of the solar motion have all been